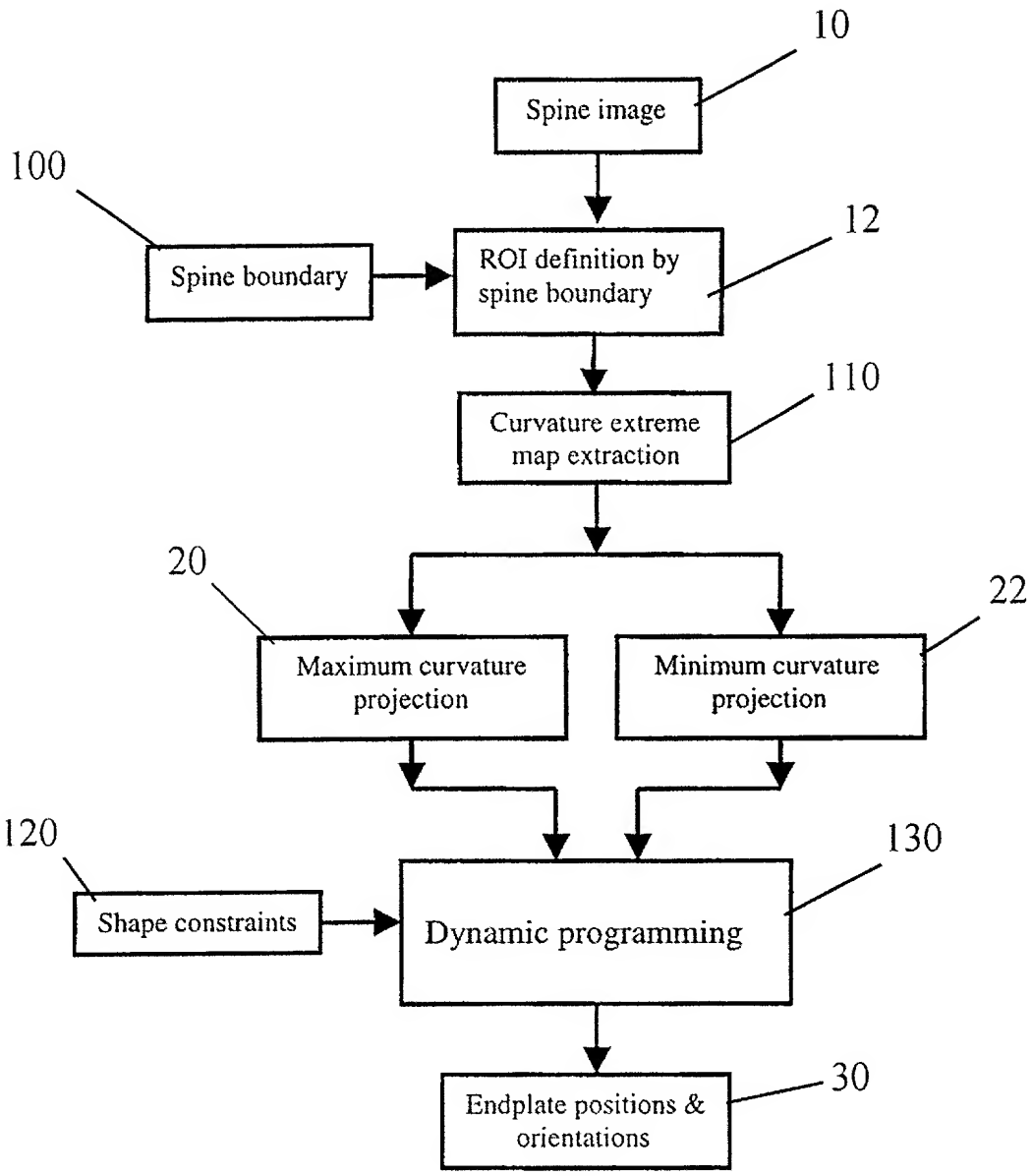

10
Spine image
100
Spine boundary
12
ROI definition by spine boundary
110
Curvature extreme map extraction
20
Maximum curvature projection
22
Minimum curvature projection
120
Shape constraints
130
Dynamic programming
30
Endplate positions & orientations

Figure 1

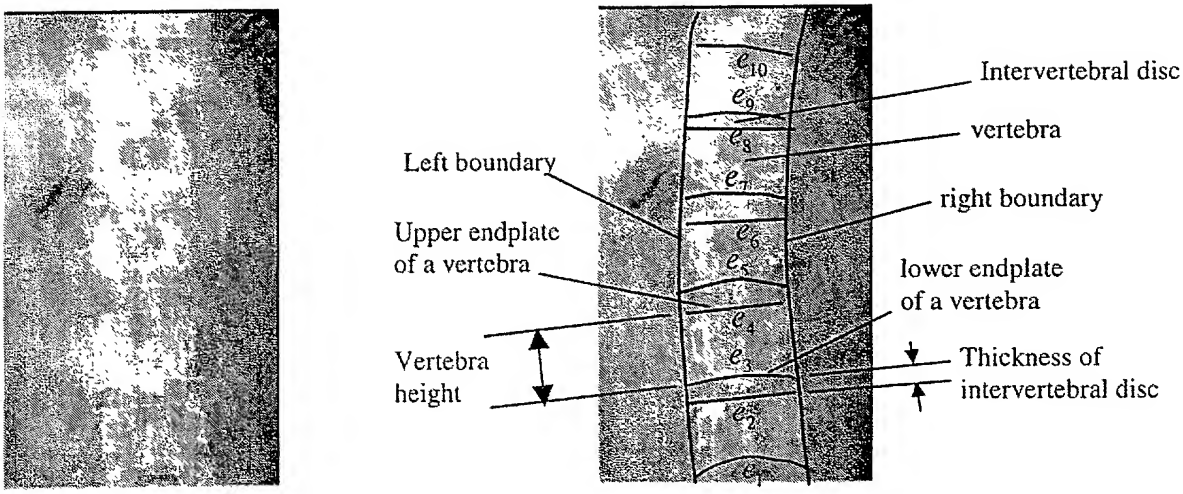



Figure 2

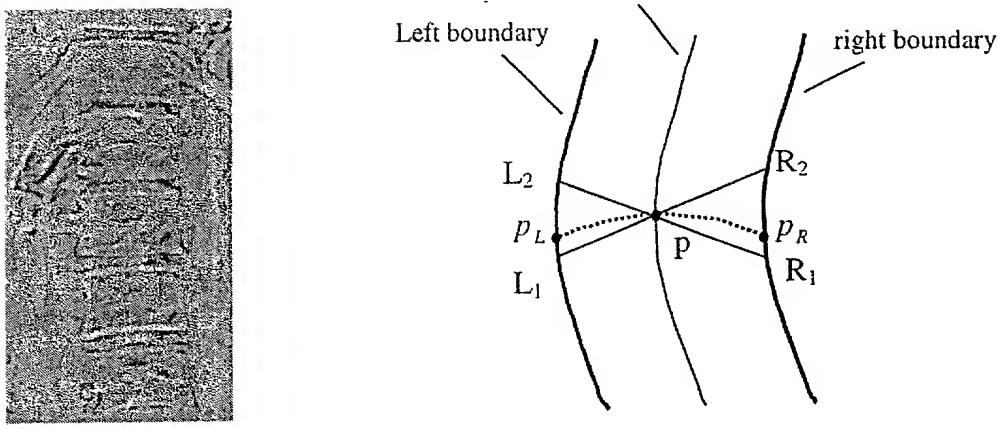
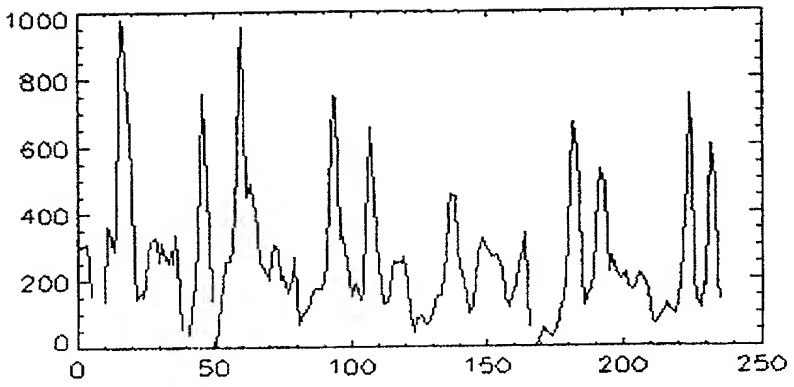
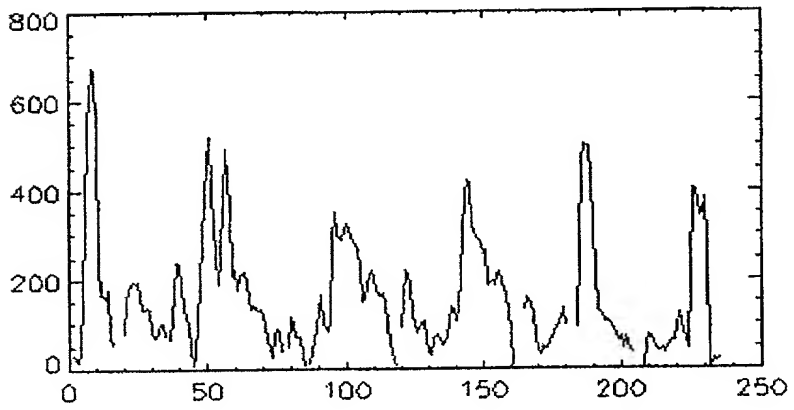



Figure 3




(a)




(b)

Figure 4

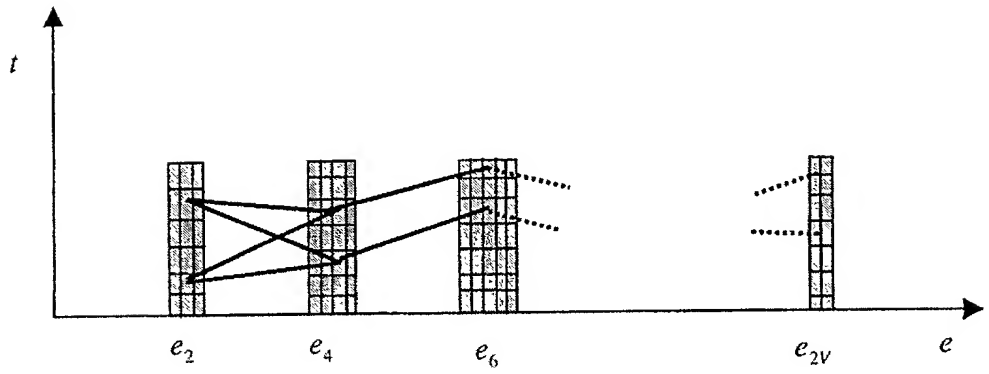



Figure 5

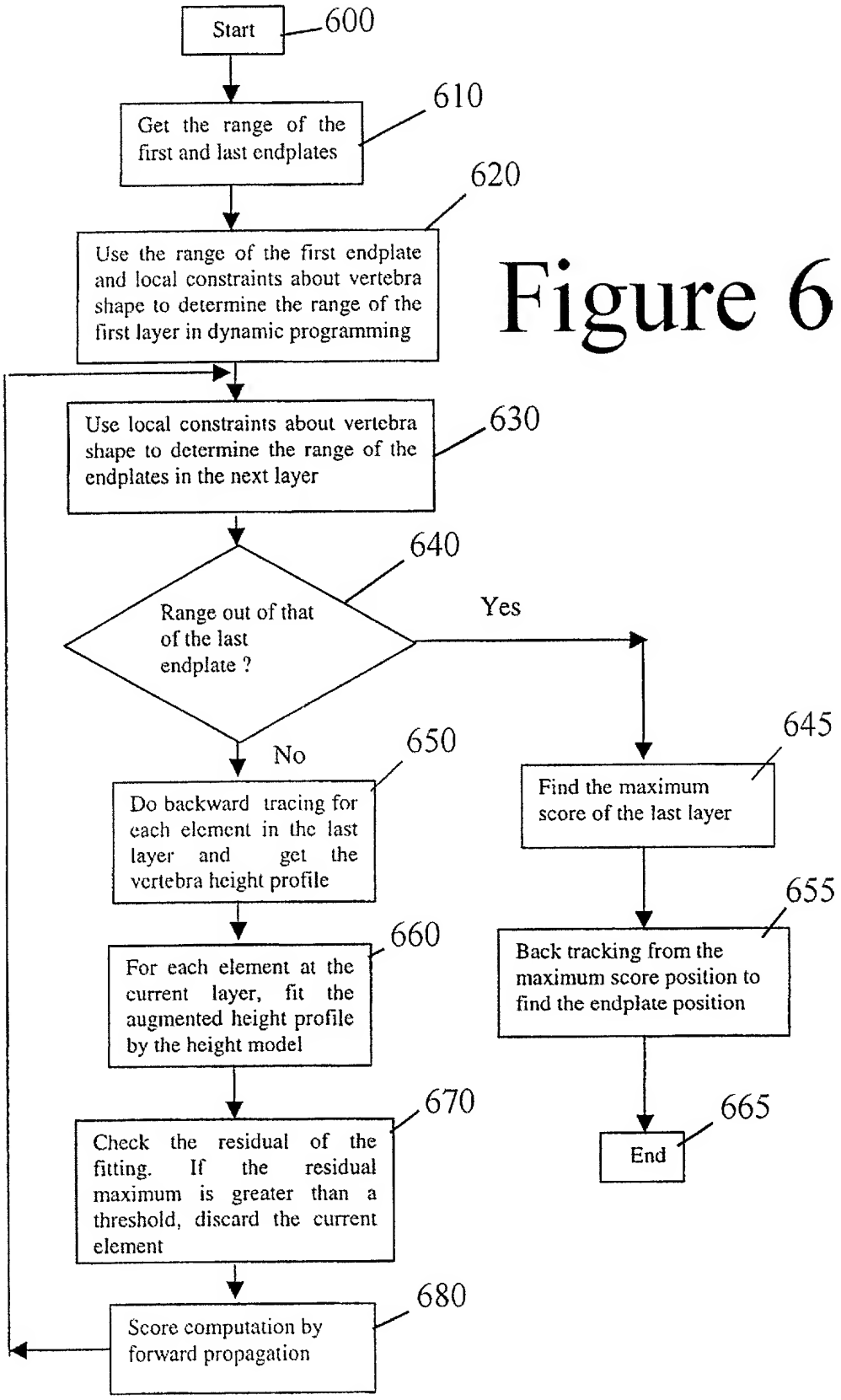
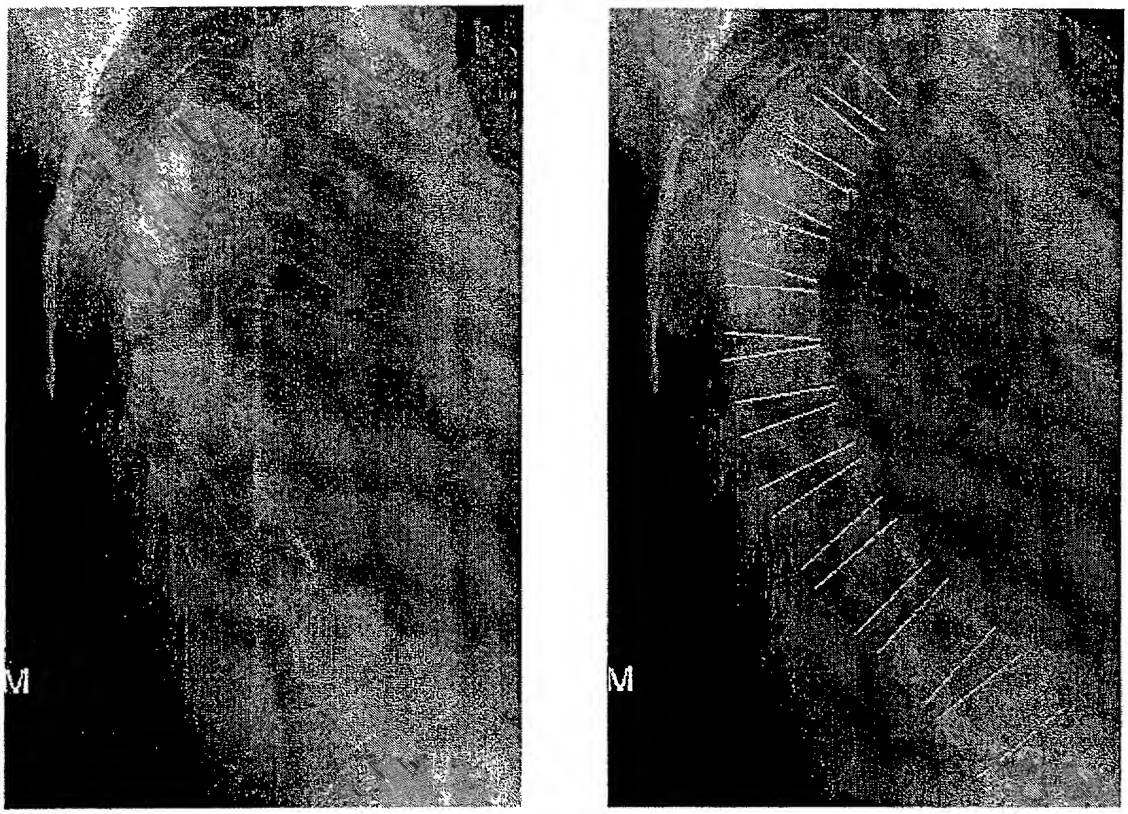

Start
600
Get the range of the first and last endplates
610
Use the range of the first endplate and local constraints about vertebra shape to determine the range of the first layer in dynamic programming
620
Use local constraints about vertebra shape to determine the range of the endplates in the next layer
630
Range out of that of the last endplate ?
640
Yes
No
Do backward tracing for each element in the last layer and get the vertebra height profile
650
For each element at the current layer, fit the augmented height profile by the height model
660
Check the residual of the fitting. If the residual maximum is greater than a threshold, discard the current element
670
Score computation by forward propagation
680
Find the maximum score of the last layer
645
Back tracking from the maximum score position to find the endplate position
655
End
665

Figure 6




(a) (b)

Figure 7